

Running head: PTSD PROGRAM OUTCOMES AT DENVER VA MEDICAL CENTER

Graduate Management Project (GMP)

Patient Outcomes in Varying Length Post Traumatic Stress
Disorder Programs at the Denver VA Medical Center

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Submitted to LCDR Elaine Ehresmann, Ph.D., CAAMA
In Fulfillment of the Requirements for
Completion of the Administrative Residency Phase
U.S. Army-Baylor University Graduate Program in Health Care Administration
June 16, 1998

DTIC QUALITY INSPECTED 1

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE June 1998		3. REPORT TYPE AND DATES COVERED FINAL REPORT (07-97 TO 07-98)	
4. TITLE AND SUBTITLE Patient Outcomes in Varying Length Post Traumatic Stress Disorder Programs at the Denver VA Medical Center				5. FUNDING NUMBERS	
6. AUTHOR(S) Susan R. Broschat					
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) VA Medical Center 1055 Clermont Denver, CO 80220				8. PERFORMING ORGANIZATION REPORT NUMBER 38a-98	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) US ARMY MEDICAL DEPARTMENT CENTER AND SCHOOL BLDG 2841 MCCS-HRA US ARMY-BAYLOR PROGRAM IN HCA 3151 SCOTT RD SUITE 1412 FORT SAM HOUST TEXAS 78234-6135				10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES					
12a. DISTRIBUTION/AVAILABILITY STATEMENT Limited distribution within U.S. Army Baylor Program and Department of Veterans Affairs				12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) The Department of Veterans Affairs has provided a number of treatment programs for Post Traumatic Stress Disorder (PTSD) including outpatient, varying length inpatient stays, and residential care. The purpose of this study is to determine if there is a statistically significant difference between the outcome measurements of each varying length intensive PTSD program (a 13-week, 11-week, and 6-week) provided by the Denver VA Medical Center since 1994. Outcomes measured were admission and discharge Beck Depression Scale and Mississippi Scale for Combat-Related PTSD. Correlation analysis showed significance at the 0.01 level indicating patient improvement at the conclusion of each program. However, analysis of variance by program revealed no statistically significant differences between the variables (t less than 1). This study supports the null hypothesis that there were no differences in the outcome measures of the programs concluding patients are just as well served in a shorter intensive program as in a longer program, This would save costs and improve access to the program for more veterans.					
14. SUBJECT TERMS Patient Outcomes; PTSD; Department of Veterans Affairs				15. NUMBER OF PAGES 36	
				16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT		

Abstract

The Department of Veterans Affairs (DVA) has provided a number of treatment programs for Post Traumatic Stress Disorder (PTSD) including outpatient, varying length inpatient stays, and residential care. The purpose of this study is to determine if there is a statistically significant difference between the outcome measurements of each varying length intensive PTSD program (a 13-week inpatient, an 11-week residential, and a 6-week residential) provided by the Denver DVA Medical Center since 1994. Outcomes measured were admission and discharge Beck Depression Scale and Mississippi Scale for Combat-Related PTSD. Correlation analysis showed significance at the 0.01 level indicating patient improvement at the conclusion of each program. However, analysis of variance by program revealed no statistically significant differences between the variables ($t < 1$). This study supports the null hypothesis that there were no differences in the outcome measures of the programs concluding patients are just as well served in a shorter intensive program as in a longer program, thereby saving costs and improving access to the program for more veterans.

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VA Medical Centers are expected to “review results of performance data from the SEPs, take steps to improve performance as appropriate, and evaluate the effectiveness of the actions on an ongoing basis.”

The DVA and Denver VAMC have provided a number of treatment modalities to deal with PTSD—outpatient, varying length inpatient stays, and residential care.

As with healthcare throughout the country, the DVA must address the issues of cost, quality, access, and patient satisfaction. Outcome measurements are an essential component of determining the efficacy and efficiency of the PTSD program. This study will analyze and compare the results (outcome measures) of psychometric PTSD testing on patients’ admission and discharge from varying length PTSD intensive treatment at the Denver VAMC.

Conditions Prompting the Study

In his Prescription for Change (1996), Dr. Kenneth Kizer, DVA Under Secretary for Health, documents goals for the DVA and establishes five major VA missions. These missions are:

- I. Provide excellence in healthcare value;
- II. Provide excellence in service as defined by customers;
- III. Provide excellence in research and education;
- IV. Be an organization that is characterized by exceptional accountability;
- V. Be an employer of choice.

He also defines the DVA’s vision as:

The new veterans healthcare system supports innovation, empowerment, productivity, accountability and continuous improvement. Working together, we provide a continuum

of high quality healthcare in a convenient, responsive, caring manner—and at a reasonable cost.

The strategic plan to carry out the above missions and vision of the DVA is further articulated by Dr. Kizer in the recently published, Journey for Change (1997). Five “domains of value” support Mission I, “provide excellence in healthcare value,” which are:

Technical quality—the successful application and appropriateness of the techniques and technologies used to treat medical conditions and the outcomes of those interventions;

Cost/Price—the efficient management of appropriated and other funds to operate the VA healthcare system;

Service satisfaction—the views of veterans and their families about their care;

Access—the time, distance and ease of obtaining appropriate VA medical care and services;

Functional status—the ability of patients to perform usual and accustomed activities after medical interventions.

As all healthcare programs attempt to satisfy the five domains of value, PTSD programs throughout the country (including Denver) are being scrutinized. The Journey for Change (Kizer, 1997) documents operational strategies to “provide excellence in healthcare.” These include resource management, managed care, shift from inpatient to outpatient care, and improving access to care.

Resource Management

Efficient use of resources is paramount to achieving the mission goals and strategic targets in the DVA (Kizer, 1997). VHA Directive 96-051, dated August 14, 1996, states that Medical Center Directors are responsible for “reviewing results of performance data from the

Improving Access to Care

The Prescription for Change (Kizer, 1996) outlines objectives for Mission II, provide excellence in service as defined by customers. Objective 20 is to "improve access for targeted groups, including combat veterans with PTSD..." Action plans to accomplish this include seeking "additional opportunities to tailor the care environment to the particular needs of related groups of patients." Emphasis is being placed on increased use of residential care and tailoring programs to meet specific patient needs.

Many special emphasis programs carry waiting lists of patients, including intensive PTSD programs. Shorter treatment programs allow more opportunity for veterans to participate while reducing costs.

Statement of the Problem

In attempting to satisfy the guidelines outlined above, the DVAMC has provided varying modalities of PTSD treatment aside from outpatient therapy. The first inpatient program, the Evaluation and Brief PTSD Treatment Unit (EBPTU) was a 6-week inpatient program from January 24, 1992 to January 17, 1994. It became a 13-week Specialized Inpatient PTSD Unit (SIPU) from January 18, 1994 to April 13, 1997.

To reduce BDOC and salary costs, the program became an 11-week PTSD Intensive Residential Rehabilitation Program (PIRRP) from April 14th to November 2, 1997. Since November 3, 1997, to further reduce costs and improve access, the PIRRP was revamped and reduced to a 6-week residential care program from November 3, 1997 to present.

As these changes were made for cost containment purposes, the question must be asked: Is there a difference in patient outcome measurements between the 6-week inpatient, 13-week

inpatient, 11-week residential care, and 6-week residential care programs in patient outcomes at the Denver VAMC?

Literature Review

What is Post-Traumatic Stress Disorder?

The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (1994) of the American Psychiatric Association outlines the characteristics of PTSD (Diagnostic Code 309.81). Diagnostic criteria, as it pertains to adults, include the following:

- A. The person has been exposed to a traumatic event in which both of the following were present:
 - (1) the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others
 - (2) the person's response involved intense fear, helplessness, or horror.
- B. The traumatic event is persistently reexperienced in one (or more) of the following ways:
 - (1) recurrent and intrusive distressing recollections of the event,, including images, thoughts, or perceptions.
 - (2) Recurrent distressing dreams of the event
 - (3) Acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur on awakening or when intoxicated).
 - (4) Intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event

According to Dr. C. B. Scignar, Clinical Professor of Psychiatry at Tulane University School of Medicine, the objective of treatment is to modify “selective stimuli from the external world, physiological processes of the body, and cognitive activities of the brain .” (1988) Though prescriptive treatment varies by individual patient, Dr. Scignar recommends four therapeutic interventions: “1) explanation-education, 2) training in relaxation, 3) encephalic reconditioning (cognitive restructuring), and 4) medication.”

DVA Initiatives

Following the acknowledgement of the existence of PTSD, “major questions emerged as to its prevalence and severity among Vietnam theater veterans (Fontana, Rosenheck, Spencer, 1990). A broad-scale study was commissioned in 1984 by the DVA to determine the extent of the illness and treatment programs available. This study was performed by the Research Triangle Institute, entitled the “National Vietnam Veterans Readjustment Study (NVVRS),” and completed in 1988 (Kulka, Schlenger, Fairbank, Hough, Jordan, Marmar, & Weiss, 1988). The findings estimated the overall prevalence of current PTSD among Vietnam Theater veterans to be 15.2% (477,000 veterans) nationally with 11.1% (350,000 veterans) “having significant symptoms of PTSD” though not meeting all the criteria (Fontana, Rosenheck, Spencer, 1991). At the time of the NVVR Study, data noted almost 830,000 Vietnam Theater veterans “continue to have clinically significant stress reaction symptoms.”

A study of 2,092 male twins, one having served in Southeast Asia and the other serving elsewhere, reported a “ninefold increase in the prevalence of PTSD” in the twin serving in Southeast Asia (Goldberg, True, Eisen, Henderson, 1990). This study was significant in that it compared individuals with the same genetic makeup and family environment.

Though the results of the NVVRS were not available until 1988, more information on PTSD was being compiled and the DVA was reacting to patient needs. By 1983, the DVA had already established 137 Veterans Outreach Centers and 16 specialized inpatient PTSD units (Rosenheck et al, 1990). Laws had been passed to assure Vietnam Veterans were provided counseling for their psychological problems.

In 1987, 15 outpatient PTSD Treatment Teams (PTT) were established. These were restructured a year later into outpatient PTSD Clinical Teams (PCTs) mandated to improve access to patients needing specialized services, provide educational support, and establish a "uniform protocol for clinical assessment and program evaluation (Rosenheck et al., 1990)."

Though the first specialized inpatient programs were started in the mid-1970's, in succeeding years they became more abundant throughout the VAMC's. These programs were established out of a recognition that many Vietnam veterans suffering from PTSD felt out of place on standard psychiatry units (Fontana et al., 1993). The Revised Combat Exposure Scale (RCS) (Appendix A) measures the degree of exposure to Vietnam combat experiences. As outlined in the Veterans Health Administration Clinical Practice Guidelines, on a scale of 1-14, scores of 10 or higher indicate "high" combat exposure (Department of Veterans Affairs, 1997). According to Watson, Juba, and Anderson (1989) the RCS has high internal consistency ($\alpha = .84$) and its concurrent validity has been supported by high correlation ($r = .84$) with independently derived criteria of war zone trauma exposure obtained through military records. Fontana (1993) further stated that PTSD treatment experts "came to believe that treatment of this disorder required longer than usual lengths of stay (e.g., 2-3 months vs. 2-3 weeks for other psychiatric disorders)." This is "because combat veterans suffering from PTSD needed

additional time in a supportive and understanding environment to uncover and address their traumatic war zone memories and experiences."

The first program in the VA, called the Specialized Inpatient PTSD Unit (SIPU), was "an intensive mix of individual and group therapies" usually of a three-month duration (Fontana, Rosenheck, Spencer, 1993). Other inpatient programs followed--for those veterans with dual diagnoses of PTSD and substance abuse, PTSD Substance Abuse Units (PSU's); an Evaluation and Brief Treatment PTSD Units (EBPTU's), averaging six week stays; and the PTSD Residential Rehabilitation Program (PRRP) which can be several months, but of less intensity than the EBPTU or SIPU. All of these programs have existed at various times at the Denver VAMC.

Outcome Measurements

As our healthcare system undergoes more changes than ever before, objective measures of outcomes are essential to program evaluation. According to Dr. Len Sperry (1997), the "outcomes revolution" is three faceted: 1) "a shift in viewing diagnostic evaluation, 2) a shift in viewing treatment emphasis, and (3) a shift in viewing measurement of therapeutic change." Dr. Sperry further emphasizes the learning that must be associated with outcomes measurements, so it is used as a tool in "reshaping or improving the overall administration and clinical processes of services provided."

A recent study performed by Doctors Alan Fontana and Robert Rosenheck of the VA Northeast Program Evaluation Center (1997) compared outcomes and costs of three DVA inpatient models for PTSD: "1) long-stay specialized inpatient PTSD units, 2) short-stay specialized evaluation and brief-treatment PTSD units, and 3) nonspecialized general psychiatric units." Their results showed "all models demonstrated improvement at the time of discharge, but

during follow-up symptoms and social functioning rebounded toward admission levels, especially among participants who had been treated in long-stay PTSD units,” and veterans in short-stay and general psychiatric units showed “significantly more improvement during follow-up than veterans in the long-stay PTSD units.” Their conclusion was that “restructuring of VA inpatient PTSD treatment could result in delivery of effective services to larger numbers of veterans.”

For the past four years (1994 to present), the PTSD program at the DVAMC has measured patient outcomes with a variety of testing instruments. Only two, however, measure the patient’s symptoms at both the time of admission to intensive treatment and at discharge—the Beck Depression Scale and the Mississippi Scale for Combat-Related PTSD.

The Beck Depression Inventory (BDI) is “probably the most widely used self report measurement designed explicitly for depression” (Hickey and Baer, 1988). “Reviewers have characterized the BDI as focusing on subjective experiences of depression, including pessimism and self-punitive wishes.” The Beck Depression Inventory subscales show high internal consistency (.90) and good test-retest reliability coefficients (Cronbach’s alpha) over a one week period [$r(64) = .76$] in a prior study by Beck, Steer, and Garbin (1988).

The Beck Depression Scale (Appendix B) is divided into five levels of depression severity:

0 to 9 normal range

10 to 15 mild depression

16 to 19 mild-moderate depression

20 to 29 moderate-severe depression

30 to 63 severe depression

The questions are proposed by asking the patient to select numbered statements which most accurately reflect how s/he has felt in the past week (Young, 1982).

The Mississippi Scale for Combat-Related PTSD is a self-reported 35-question test developed from the Diagnostic and Statistical Manual of Mental Disorders criteria (Appendix C). The Mississippi Scale "permits an adequate range of scores so that it can be sensitive to more subtle changes in the symptom complex as they result from therapeutic intervention (Keane, Caddell, and Taylor, 1988). The psychometric properties of the Mississippi Scale for Combat-Related PTSD were explored in three studies by Keane et al (1988). Their conclusions in the first study "confirmed the internal consistency of the instrument," "demonstrated the high test-retest reliability of the instrument" in the second study, and "indicated the test's sensitivity was .93, specificity was .89, and overall hit rate was .90 when it was used to differentiate between a PTSD group and two non-PTSD comparison groups" in the third study. Their information essentially defined a score of 107 or greater on the Mississippi Scale as a positive indicator 90% of the time that PTSD is a correct diagnosis.

Analysis of variance (ANOVA) in the DVAMC 13-week program between 1994 and 1996 showed statistically significant variances between the admission and discharges tests (Beck 1.2E-16 and Mississippi .001397). However, no analysis had been accomplished to compare outcome measures between each of the varying length (13-week, 11-week, 6-week) intensive PTSD programs at the Denver VAMC.

Purpose (Variables/Working Hypothesis)

The purpose of this study is to determine if there is a statistically significant difference between the outcome measurements of each varying length intensive PTSD program (Group 1 =

13-week inpatient, Group 2 = 11-week residential, Group 3 = 6-week residential) provided by the DVAMC since 1994.

Variables are as follows:

Dependent: Patient outcomes of psychometric testing (Beck Depression Scale and Mississippi Scale for Combat-Related PTSD) obtained on patients' admission and discharge from the program.

Independent: 13-week inpatient PTSD program (SIPU)
11-week residential PTSD program (PIRRP)
6-week residential PTSD program (PIRRP)

Outcome measurement data was not available for the 6-week inpatient EBPTU program from 1992 to 1994, so this program could not be analyzed against the others.

The hypothesis is:

Alternate: There is a difference in patient mental health outcomes in varying length inpatient and residential PTSD programs.

Null: There is no difference in patient mental health outcomes in varying length inpatient and residential PTSD programs.

Method and Procedures

Subjects

Subjects are all male patients who participated in intensive PTSD programs at the Denver VAMC from January 1, 1994 through April 24, 1998. For the purpose of data analysis, the varying length treatment programs were coded as mutually exclusive, categorically exhaustive, binary variables. Each program was assigned a group number (1, 2, and 3): Group 1 was the 13-week inpatient (SIPU); Group 2 was the 11-week residential care (PIRRP); and Group 3 was the

6-week PIRRP. Only subjects who completed the PTSD program were included totaling 300 patients (n=300). Patients who did not complete the program were not included.

Design

This study is a program analysis using interval data. Completed patient test scores were used, as individual question answers were not available. Analysis of variance (ANOVA) was computed between groups to examine differences. Missing values were not a factor, as only patients completing the program were included.

Analyses

Data was obtained from test document files maintained in the PTSD Unit of the Denver VAMC Mental Health Department. Degreed DVAMC Mental Health staff trained in the testing process performed testing. The information was input into an Excel spreadsheet and then transferred to SPSS for statistical analysis.

Schedule/Procedures/Time Considerations

This study was retrospective in that it measured outcomes from January 1, 1994 to April 28, 1998. Neither the EBPTU or 11-week/6-week PIRRP programs were in place as long as the SIPU program, so their "N's" are considerably smaller (27 and 47 respectively) than the SIPU's of 226.

Psychometrics (Reliability and Validity)

The reliability and validity of the data measurement tools (Beck and Mississippi) are outlined in the literature review. Only completed test scores, not individual answers, were used in the analysis; therefore, standardized reliability (Cronbach's alpha) and validity (Pearson's R) could not be computed in this study.

Ethical Considerations

The investigator knew none of the subjects and only their test scores were input into SPSS to maintain confidentiality.

Results

Descriptive Statistics

The data obtained from the veteran testing were submitted to multivariate analyses including frequency distributions, typical performance, variability, and correlation analyses. . The average age of all patients in the study was 47.75 years ($SD = 4.76$). Overall combat scores averaged 29.21 ($SD = 8.39$), a level indicating patients had an extremely high exposure to combat. This data is presented as follows:

Table 1

Descriptive Statistics of Variables

	N	Range	Minimum	Maximum	Mean		Std.	Variance
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
GROUP	300	2	1	3	1.40	4.30E-02	.75	.556
AGE	300	39	28	67	47.75	.27	4.76	22.661
COMBAT	300	47	2	49	29.21	.48	8.39	70.332
PREBECK	300	51	9	60	34.47	.54	9.37	87.775
POSTBECK	300	60	1	61	27.27	.70	12.11	146.659
PREMISS	300	94	81	175	137.41	.88	15.29	233.761
POSTMISS	300	101	74	175	134.11	1.04	18.08	326.730
GROUP1	300	1	0	1	.75	2.49E-02	.43	.186
GROUP2	300	1	0	1	9.00E-02	1.66E-02	.29	.217E-02
GROUP3	300	1	0	1	.16	2.10E-02	.36	.133
Valid N (listwise)	300							

Group 1 consisted of 226 patients ($n = 226$), which were 75% of the total 300 patients.

The Beck admissions to discharge scores' mean was 7.1460 with a standard deviation of

10.5507. Mississippi admissions to discharge scores' mean was 3.0221 with a standard deviation of 13.6735.

Group 2 consisted of 27 patients ($n = 27$), which were 9% of the total 300 patients. The Beck admissions to discharge scores' mean was 6.0741 with a standard deviation of 13.8895. Mississippi admissions to discharge scores' mean was -1.1852 with a standard deviation of 16.6018.

Group 3 consisted of 47 patients ($n = 47$), which were 16% of the total 300 patients. The Beck admissions to discharge scores' mean was 8.0851 with a standard deviation of 12.5383. Mississippi admissions to discharge scores' mean was 7.1915 with a standard deviation of 17.7478.

Comparisons

The dependent variable was the change in admission and discharge Beck scores, and the independent variables were Groups 1, 2, and 3; age; and combat. The product moment correlation coefficient (Pearson r) of admission and discharge Beck and Mississippi scores showed statistical significance (Beck $r = .482$, $p = .01$; Mississippi $r = .621$, $p = .01$). This indicated a positive relationship in the Beck/Mississippi measurement outcomes.

Table 2

Beck Score Correlations

		PREBECK	POSTBECK
PREBECK	Pearson Correlation	1.000	.482**
	Sig. (2-tailed)	.	.000
	N	300	300
POSTBECK	Pearson Correlation	.482**	1.000
	Sig. (2-tailed)	.000	.
	N	300	300

** . Correlation is significant at the 0.01 level (2-tailed).

Table 3**Mississippi Score Correlations**

		PREMISS	POSTMISS
PREMISS	Pearson Correlation	1.000	.621**
	Sig. (2-tailed)	.	.000
	N	300	300
POSTMISS	Pearson Correlation	.621**	1.000
	Sig. (2-tailed)	.000	.
	N	300	300

** . Correlation is significant at the 0.01 level (2-tailed).

Analysis of variance between the Beck and Mississippi scores by program revealed no statistically significant differences between the variables ($t < 1$).

Table 3**One Way Analysis of Variance**

		Sum of Squares	df	Mean Square	F	Sig.
PREBECK	Between Groups	296.239	2	148.120	1.695	.185
	Within Groups	25948.427	297	87.368		
	Total	26244.667	299			
POSTBECK	Between Groups	646.180	2	323.090	2.221	.110
	Within Groups	43204.950	297	145.471		
	Total	43851.130	299			

Discussion

As with the Fontana and Rosenheck (1997) study, veterans of the varying length Denver PTSD programs were not randomly selected. It is possible that other variables may be at work in these populations, which were not accounted for in this study. The personal situations of each patient may have varied in their group participation, depending upon whether they were able to attend a 13-week program or could only attend a 6-week program. Factors such as their ability to take off work or leave family for varying length stays may have had some effect on participation.

The study covered over a four year period of time, so any changes in PTSD staff may have had an effect. Though the majority of staff remained the same, some support staff changed during this time.

Also at issue, are questions about service-connected compensation. PTSD service-connected patients in receipt of disability compensation who are hospitalized for more than 21-days are made temporarily 100% service-connected. This provides more money, even if temporary, to the patient and may reinforce claims for increased compensation--in other words, they may have no reason to get better if the financial compensation is greater to be sick.

Some question may be raised, as well, to the length of time from the period of combat and PTSD stressor to the time of treatment. Shorter or longer time periods may have an impact on the patient's response to treatment, which are not reflected in this study.

Though it would have been beneficial to compare financial costs of each program, neither the cost distribution report nor the decision support system provided data reliable enough to use in this study. Refinement of this cost data was considered, but decided to be beyond the scope and time available for this project.

Conclusions and Recommendations

The Beck and Mississippi outcome measures revealed statistically significant improvement in depressive and PTSD symptoms between the patient's admission and discharge in all treatment programs. These are important measures to carry over time to determine if the patient continues to remain stable or improve in follow-up and may be considered in future studies.

This study, however, supports the null hypothesis in that there is no difference in the outcome measures of either the 13-week, 11-week, or 6-week programs. This leads to the

conclusion that patients are just as well served in a shorter intensive program as in a longer program. It also presents the question--can patients be equally treated in a shorter program, such as 4 weeks, or two weeks, or one week? This study could be replicated using these variables to determine at what point (if any) there is a difference in measurement outcomes between programs.

The Beck Depression Scale and the Mississippi Scale for Combat-Related PTSD are considered valid and reliable measures, but are completely subjective. Patient self-reporting of symptoms may not be as reliable as some objective criteria, such as continued employment, perceptions of spouse, relationship satisfaction, and others. Though patient subjective information is important, it can change quickly for the patient dependent upon even minor stressors. Consideration should be given to developing additional objective outcome measurements, which can be carried over a longer length of time.

The shift from an inpatient to a residential program was an appropriate attempt to reduce lengths of stay and bed days of care in conjunction with Dr. Kizer's Prescription for Change (1996). This effort, however, may need to be taken further to develop an intensive outpatient program, which would provide the same benefit with less resource costs.

Shorter lengths of stay provide greater access for patients to be treated in intensive PTSD programs. This then allows for more patients to be treated with less time on a waiting list. Additionally, costs per patient are lowered as more unique patients can be treated.

In attempting to fulfill Mission I, to "provide excellence in healthcare," the VA is clearly concerned with managing care appropriately. The Department of Veterans Affairs is fortunate to have at its disposal, a variety of opportunities to modify the way it is doing business, one of the

largest integrated healthcare delivery systems in the world, and patients who are loyal to the system. The DVA will surely achieve this mission in the coming years.

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